R E P O R T R E S U M E S

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A STUDY OF CLOSED-CIRCUIT TELEVISION AS A TEACHING TECHNIQUE FOR SPEECH IMPROVEMENT IN THE PUBLIC SCHOOL SYSTEM.

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THE EFFECTIVENESS OF CLOSED-CIRCUIT TELEVISION FOR SPEECH IMPROVEMENT AT THE THIRD-GRADE LEVEL WAS INVESTIGATED. OBJECTIVES OF THE STUDY WERE TO TEST (1) THE EFFECTIVENESS OF TELEVISED INSTRUCTION ON INSERVICE TRAINING PROGRAMS FOR ELEMENTARY CLASSROOM TEACHERS AND (2) THE AMOUNT OF SPEECH IMPROVEMENT WITH THIRD-GRADE CHILDREN VIEWING 52 TELEVISION PROGRAMS DURING 1 SCHOOL YEAR. ELEVEN CLASSES OF THIRD-GRADE STUDENTS SERVED AS SUBJECTS IN CONTROL AND EXPERIMENTAL GROUPS. DATA WERE ANALYZED ON 220 CHILDREN AND 10 TEACHERS. ALL GROUPS WERE GIVEN THE SAME BATTERY OF 10 TESTS PRIOR TO AND AFTER THE PROGRAMS. THE CONTROL GROUPS DID NOT RECEIVE THE PROGRAMS. THE EXPERIMENTAL GROUP DID NOT DEMONSTRATE IMPROVEMENT SIGNIFICANTLY SUPERIOR TO THAT OF THE CONTROL GROUP. IT WAS POINTED OUT THAT EFFECTIVE TELEVISION DEMANDS INFINITELY DETAILED PREPLANNING, PROFESSIONAL AND ENTHUSIASTIC OPERATORS, ADEQUATE FACILITIES, AND INTENSE INTEREST OF ALL PARTICIPANTS. SUGGESTIONS WERE MADE FOR FURTHER STUDY BEFORE FIRM CONCLUSIONS ARE MADE CONCERNING THE EFFECTIVENESS OF TELEVISION IN THE AREA OF SPEECH INSTRUCTION. (JC)

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A STUDY OF CLOSED-CIRCUIT TELEVISION AS A TEACHING TECHNIQUE FOR SPEECH IMPROVEMENT IN THE PUBLIC SCHOOL SYSTEM

A Study of Closed-Circuit Television as a Teaching Technique for Speech Improvement in the Public School System

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operates a community cable closed circuit system, generously offered full use of their studio and studio facilities.

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I. INTRODUCTION

For the past seven years prospective speech correctionists and/or speech therapists at the University of Arkansas have been given the opportunity to teach speech improvement (as defined on page 4) in the first and/or second grades of the Fayetteville Public School System. These classes were taught for a period of twenty minutes daily for the nine months period. Because of the limited number of trained university students - sometimes three, never more than four - only two or three schools could be served each year. Ultimately, it was hoped that the classroom teacher might be encouraged to assume the responsibility of teaching speech improvement. However, most of the teachers have not received adequate training for such a task. The medium of television seemed to be the answer to both problems. All schools could be served and with comparable material, while the course could also serve as in-service-training for teachers and speech improvement for children. Should television prove an effective technique for teaching speech improvement, the entire state might include such a program in the public school.

Communication has been and continues to be considered a two-way system, that is, the speaker feeds his thoughts to an audience and an audience in turn feeds back reactions to the speaker, a reciprocal action. Thus, to learn to speak, one must speak, to be actively engaged in speaking. It was also thought that "a course such as speech where close attention to individual needs is necessary can only be conducted under severe handicaps over the air."[20] If these beliefs are

true, it might be then asked, can speech improvement be taught to children and adults by television?

In the Canadian schools it was found that clear diction was effectively taught by television.[20] Dillard from her Pilot Study, "An Exploratory Study of Closed-Circuit Television as a Teaching Technique for Speech Improvement in the Elementary Schools," concluded: "In the opinions of the teachers and parents of the experimental subjects, televised teaching was an effective method for presenting speech improvement."[6] Morton J. Gordon, from his study, "Third Grade Television-Classroom Articulation Program," concluded that "television may prove a valuable medium for supplementary instruction, but further evidence is needed to evaluate more clearly its place in group speech improvement."[18]

The present experiment was designed to investigate further the effectiveness of closed-circuit television instruction of speech improvement in the public school. The purpose of the study was two-fold:

1) To test the effectiveness of closed-circuit television instruction as in-service-training for elementary classroom teachers; and
2) To test the amount of speech improvement achieved with third grade students through 32 closed-circuit television programs presented bi-weekly for one school year.

II. PROCEDURE AND EXPERIMENTAL DESIGN

Pre-planning

Prior to the beginning of the television programs the co-directors, psychological consultant and the public school speech therapist met with the Superintendent of the Schools and all of the third grade teachers in order to synchronize the plans. It was agreed that five schools would participate in the program. The third grade was chosen because of the children's ability to comprehend ideas and also because it was believed that pleasure in talking does begin early in life. At this time the control and experimental groups were selected, and a time schedule was set for the presentation of the programs. The general purpose and procedure of the study were reviewed again.

Subjects

Eleven classes of third grade children for the 1959-60 enrollment served as subjects. Each school had a control class and an experimental class. In one school there were two experimental groups because there were three third grade classes. However, only one of these was used in the data analysis. The specific class to be used in each school as the experimental group was determined by random selection, the flipping of a coin.

Equipment and Personnel

The KHOG Management of Fayetteville, Arkansas, extended its closed-circuit television cable to the five schools in the experiment. Each school owned a 24 inch receiver. The location of these varied within each school. Two were located at times in an auditorium and

at times in a basement, one was moved into the classroom on the day of the program; one set consistently remained in the basement, another set rotated between the dining room and the basement. About five minutes before the program the children came from their classroom to the viewing area. There was an average of thirty viewers for each set with the exception of one school where two classes viewed from the same receiver.

University of Arkansas undergraduate students from the television and acting classes in the speech department were employed to participate in the productions. These students were under the supervision of the director of radio-TV classes. (For further information concerning television equipment and personnel, note "Production Procedures" in Appendix).

Organization of the Television Programs

The teachers and the students of the experimental group viewed together each program. These programs, twenty minutes in length, were presented on Monday and Friday afternoons at 2:00 p. m. Arrangements were made for sixty-five telecasts; however, because of weather conditions and unforeseen holidays, fifty-two telecasts were presented. There was no training of speech improvement for the teachers and the students of the control group. During the viewing time, they continued with their regular classroom activity.

Speech improvement is defined for purposes of this study as training in the fundamental oral communication skills for every child regardless of either gift or talent for verbal expression. Speech

improvement was further interpreted to mean the motivation of children toward the development of more effective oral communication by creating an awareness of the importance of speech and its production, and by providing specific training in vocal, articulatory, and listening skills. Since the chief aim was to teach the subjects about their way of talking, the program series was called, "Know Your Speech."

The first half of the series emphasized speech as a tool, that is understanding the speech mechanism, elements of sound, rhythm, and listening; the second half focused on voice (quality, pitch, loudness), enjoyment of talking, and encouragement of active listening.

The objectives of the yearly program were formulated as follows:

First Semester

1) To hear, comprehend and produce speech sound elements: (b) (w) (hw) (t) (d) (k) (g) (l) (r) (ʒ) (s) (z) (ʃ) (tʃ) (dʒ) (f) (v) (eɪ) (oɪ) (i) (oʊ) (ʊ) (m) and (p).

2) To improve auditory memory span

3) To improve speech discrimination

4) To aid the development of all aspects of language, i.e., reading, spelling, and speech

5) To integrate speech with the regular curriculum of the academic areas of the social studies and the sciences

Second Semester

1) To hear, comprehend and produce a pleasing voice

2) To provide opportunity for putting previously learned sound skills into conversation

3) To appreciate the dialects of different United States areas and foreign countries

4) To further listening skills both critically and appreciatively

5) To experience speech as a safety-value of the emotions

6) To understand that talking aloud enables us to think more effectively

7) To integrate speech with the regular curriculum of academic areas, social studies, and science

Each speech improvement lesson was written in a complete script form. The actors memorized only certain key words and phrases unless there were dramatizations, in which case they memorized their respective parts.

Mrs. Dillard, experimentor for the pilot study, wrote the scripts for each production. Before the scripts were passed on to the production crew, they were checked carefully by the co-directors for course content and production problems. The corrected script was then given to each person on the production crew.

Televised Procedures

From the pilot study it was learned that the audio-visual aids, or the audio-visual means of presentation of the lessons, were considered the most effective element of the series; thus, the same format of presentation was used: scripts, five hand-puppets, Ruby Lips, Pearly Teeth, Pinky Tongue, Friendly Palate, and Voice Box, personifying the five talking helpers and the teacher hostess, who served many purposes.

> "She established a point of reference by introducing and concluding each program, introducing guests, and providing transitional material. She was primarily created in order to give the students an object of identification. It was she, along with the subject, who was being taught. The use of dialogue furnished an opportunity for her to reinforce material by asking questions, or appearing not

to understand. She emerged as teacher when the physical limitations of the puppets prevented their explaining particular concepts."

"Rather than telling the children about the importance of speech, or the desirability of pleasant vocal quality, demonstration skits were employed. Skits, along with poems and stories, were performed by the puppets, puppeteers, or guests. The elements which composed the format of the programs can be summarized into the following four points:

1. Scripts

2. Hand-puppets operated vocally by University of Arkansas students

3. Television teacher-hostess performed by a graduate student from the University of Arkansas

4. University of Arkansas students who performed interpretative materials and demonstration skits."[6]

A sampling of the scripts is included in the Appendix.

Experimental Design

The experimental design used to evaluate the results of the study was the pre-test, post-test method. Since speech or talking is a process which involves using speech sounds, listening, recalling, discriminating among speech sounds, reading, language comprehension, intelligence, and the personality of the talker, both groups, experimental and control, were given a battery of tests designed to evaluate these processes. The various tests administered were:

1) Picture Articulation Test -- Bryngelson, Bryng and Glaspey, Esther

2) Articulation Test -- Templin, Mildred C.

3) Language Comprehension Test -- Science Research Association Achievement, Series 2-4 -- Thorpe, Louis P., Lefever, D. Welty, Mashind, Robert A.

4) Audiometric Test, Audiovox, 7 b p

5) Critical and Appreciative Listening Test -- Richards, Walter and Hodge, Marilyn

6) Sociogram -- Richards, Walter and Hodge, Marilyn

7) Kuhlmann - Anderson Intelligence Test

8) Auditory Memory Span Test

9) Speech Sound Discrimination Test -- Templin, Mildred C.

10) Program Contest Test for Teachers -- Ivey, Sara M.

All pre-testing except the intelligence tests was carried out in September, 1959, during the first weeks of school. The post-testing was completed in May by the last week of school. Tapes were made of each child's articulation, reading, and spontaneous speech. Members of Sigma Alpha Eta, the Speech and Hearing Fraternity, under the supervision of a competent graduate student administered these tests. Each child was asked to give his name, describe what he liked to play, name the pictures of the Bryngelson Test, read a selection, "The Amiable Giant," and repeat, as the examiner pronounced them, the words from the Templin Test.

The Bryngelson and Glaspey Articulation Test consists of words with selected sounds tested in the initial, medial, and final positions. Substitutions, omissions, or distortions of sounds were indicated when tapes were evaluated. The number of errors constituted the score.

The Templin Test is an articulation test consisting of words for children six to eight years of age. Here again the number of errors constituted the score.

The story, "The Amiable Giant," by Louis Slobidkin, was chosen

because it was of third grade level, short in length, and considered interesting.

For convenience in evaluation, spontaneous speech was grouped into three categories; intelligibility, fluency, and voice. These abilities were rated in a rank order series of 1-5 with one being valued "superior" and five being valued "very poor." For the same reason, reading was grouped into four descriptive categories: fluency, pronunciation, attack of words, and understanding.

The tapes, pre-test and post-test, were evaluated by three experienced judges, a recent faculty member of the University, a present member of the University and a graduate student.

The regular classroom teachers administered the language comprehension tests. Four of the eight tests which make up the Science Research Associate Test Battery were selected on the assumption that performance on these tests would be related to speech improvement. The four tests used were: Reading Comprehension, Reading Vocabulary, Language Arts (usage). Form A of the test was administered to all students either at the end of the second year, or during the first month of the third year. In the latter case, the test was scored using the norms for the second semester of Grade 2. Form B was administered during the month of May and was scored using norms for the second semester of Grade 3.

The Public School Speech Therapist administered the audiometric tests, the critical and appreciative listening tests, the personality

inventory, the auditory memory span test, and the sound discrimination test.

A portable Audiovox 7 bp audiometer was used for the audiometric testing. These tests were given at each child's school. Each child was screened at 25 dbs at frequencies of 250, 500, 1000, 2000, 4000, and 6000 cps.

The critical and appreciative listening test consisted of 21 pairs of sentences and poems, with one member of the pair being correct in terms of grammar, pronunciation, voice quality, etc., and the other being incorrect. Each child was asked to listen to both statements as read by the administrator, then to indicate which of the two he preferred.

It is thought that personality dimensions such as confidence, self-esteem, happiness, friendliness towards other, etc., tend to influence speech favorably, whereas, the qualities such as inferiority, apathy, antagonism towards others influence speech unfavorably. With these qualities in mind The Sociogram was devised which sought to measure such qualities. The test consisted of 12 guess-who sentences describing the behavior of certain members of a class. For example, "guess who the two persons are who are willing to wait for their turn?" Each child was asked to listen to each sentence, then to write the name of the two persons in his class who in his judgment were most like the description or word picture.

For the Auditory Memory Span Test, the administrator pronounced a series of digits, ranging in length from 3 to 8. Each subject was

required to repeat these. Two series of each length were presented. The subject score was the highest number repeated without error. Each subject first followed this procedure, repeating the digits in a forward order; then a further series was presented which he was asked to repeat in a backward order.

For the Sound Discrimination Test, the Travis-Rasmus instrument, as modified by Templin, was used. The subject indicated on a sheet of paper his judgment of whether or not two speech sounds given by the administrator were the same or different. The scores were the number correct.

A further test, The Program Content Test,* formulated by one of the co-directors, consisted of forty-five questions based on the televised material. This test was devised for the classroom teacher. The public school speech therapist gave a copy to each teacher, both the control and the experimental group, with the instruction that each was to answer the questions and return the papers to her. These questions were answered before the programs began. The same procedure was followed after the presentation of the last television program.

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*See Appendix.

III. STATISTICAL ANALYSIS

Data were used from the two third grade classes, experimental and control, in each of the five schools. The analysis used for the treatment of these data necessitated proportional groups. In Bates School three groups, two experimental and one control had carried out the experimental procedures. Thus, a coin was flipped to eliminate one of the experimental groups; Mrs. Clearley's class was eliminated. For the same reason it was necessary to eliminate some subjects (S')* from either experimental (E)* or control (C)* groups to make the classes in a given school equal. A table of random numbers was used to determine the (S's) in each class to be discarded. After these operations, (N) was 110 in each of the control and the experimental groups, making a total of 220. The number in each class, (E) or (C), was as follows for the different schools: Bates - 20, Leverett - 30, Root - 15, Washington -32, and Jefferson - 13. In subsequent tables these (number of subjects from the different schools) were used unless indicated differently. An analysis of covariance was made of the data from the tests which yielded numerical scores. It was felt that there might be initial differences among the groups which would have nothing to do with the experimental procedures. The covariance procedure made it possible to adjust the post-test scores on the basis of pre-test

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* From this point (S's) will be used for subjects, (E) for experimental (C) for control and (N) for numbers.

performance, and thereby to minimise the effects on the post-test score of any group differences which might have existed at the time the study began.

When the covariance analysis showed a significant difference among schools or groups, a t test was run to determine where these significant differences were.

In the covariance analysis, there were three sources of variance to be checked: (1) variance due to differences among the schools; (2) that due to the conditions of the experiment, i.e., experimental or control treatment; and (3) that due to the interaction of schools and conditions. When the interaction (SXC)* is significant, it means that the effect of the (E) or (C) condition is different in different schools. Stated in another way, whether the (E) condition influences performance was determined partly by the particular school considered. In some school it might be effective; in another it might not.

Statistical analysis for SRA data was based upon the grade equivalent of the raw score, i.e., the raw score was converted to a grade equivalent according to the table of norms provided with the test, and the statistical tests were conducted on these grade equivalents. Data for each of these tests were analysed separately.

Correlations Among Judgments of Different Raters

In order to determine whether the raters tended to agree among

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*(SXC) is used to indicate schools and conditions.

themselves on their ratings of the children's speech, Pearson Product Moment coefficients of correlation were computed. All the data from Washington School was used, and correlations were computed for each pair of raters on all the judgment categories.

The data from Washington School show agreement among the judges for the four categories relating to reading. Forty-six of the forty-eight coefficients for judgments in these categories ranged from .60 to .91, with a medium of .72. This indicates that apparently the judges were using the same criteria, and that these categories were judged in a consistent and meaningful manner. Most of the coefficients for intelligibility and voice were indeterminant. This was because most children received the same rating from all judges. This, of course, indicates agreement among the judges, but it also means that, in this instance, it is not meaningful to compute a correlation coefficient. There were enough differences of opinion among the judges to allow the computation of correlation coefficients for the fluency category, and agreement among the judges was found here, with the coefficients ranging between .54 and .77.

As mentioned above, the samples from the other schools showed correlation similar to those obtained for Washington School. Generally speaking, the judges were consistent in their ratings, and showed agreement among themselves.

Kuhlmann - Anderson Intelligence Test

This test was given to determine whether the groups were equivalent according to this measurement of intelligence. The data were collected

either at the end of the second grade or at the beginning of the third grade for all students. Table I shows mean and standard deviation for experimental and control group in each school to be close and that intelligence was not a variable. It will be noted that the greatest difference in mean for any school is 5.63 points, and that the mean difference for all schools is 2.82 points.

Auditory Test

The pre-test audiometric evaluation indicated that three subjects in the experimental group had a slight hearing loss. One subject had a loss of 10 decibels in the left ear at 2000 cps and a loss of 20 decibels at 4000 cps. Another subject showed a loss of 5 decibels at 250 cps and 500 cps; and the other subject had a loss of 5 decibels at 250 cps, 15 decibels at 500 cps and 10 decibels at 1000 cps. All of these subjects were referred for medical attention. There were no hearing deficiencies found in the control group.

TABLE 1

KUHLMANN-ANDERSON I.Q.'S MEANS & STANDARD DEVIATIONS

	BATES		LEVERETT		ROOT		WASHINGTON		JEFFERSON		TOTAL	
	M	S	M	S	M	S	M	S	M	S	M	S
E	103.90	13.92	108.60	8.28	99.87	9.97	105.00	9.50	103.85	29.66	104.95	13.60
C	101.95	6.33	102.97	9.99	97.47	15.13	103.16	8.05	103.31	8.53	102.13	9.47
Total	102.92	10.58	105.78	9.47	98.67	12.60	104.08	8.72	103.58	20.96	103.54	11.75

IV. RESULTS

Program Content Test for Classroom Teachers N 10

A t-test analysis was made of the errors on the Program Content Test. Table 2 shows that mean error scores declined for both (E) and (C) teachers from the Fall to the Spring test. The difference between Fall and Spring error scores was statistically significant only for the scores of the (E) teachers.

The comparison between the scores of (E) and (C) teachers on the Fall test showed no significant differences, nor did the comparison for the Spring test scores. The latter finding indicates that the (E) group of teachers made about the same mean number of errors as did the (C) group at the end of the series of TV programs; thus, we have no evidence that the scores of the two groups were differentially affected by the programs.

TABLE 2

PROGRAM CONTENT MEAN ERROR SCORES

	MEAN FALL	MEAN SPRING	SD DIFFERENCE	t	p
Exper. teachers*	19.9	11.2	3.73	2.46	< .05
Control teachers	16.3	13.4	2.9	.55	

*n = 5 in each group.

Bryngelson Test. N 220

The number of errors made by each student was determined for both Fall and Spring tests. A D-score was computed by subtracting the number of errors made by a student on the Spring test from the number he made on the Fall test. An analysis of variance was made of these D-scores. None of the comparisons reached an acceptable level of statistical significance. The variance within groups is greater than the variance due to other sources. This indicates that there was no significant difference between schools, conditions, or interactions of SXC. Apparently the Fall and Spring scores were very similar, and the TV programs had no measureable effect on scores for this test.

Correlations of the Bryngelson Test with the Reading Ratings. N 204

The assumption was that speech and reading were related; thus in order to test the relationships of the measuring instruments, a correlation of the speech test with the reading ratings was made. The scores from the Bryngelson Test of the (E) and (C) groups were combined, since the differences were not believed important, but rather the correlation of reading with the Bryngelson Articulation Test. The reading ratings of the three judges for each student were combined, and these were correlated with the Spring error score on the Bryngelson Test. This procedure was done separately for each of the four reading ratings (fluency, pronunciation, attack and understanding). These correlations are shown in Table 3. The p-values indicate that these correlations differ significantly from zero. Practically, this probably means that the two measures, Bryngelson and Reading Ratings,

Table 3. Summary of Correlation of Bryngelson Test with Reading Ratings.*

Bryngelson with	V	t	P
Reading Fluency	.276	4.079	<.01
Reading Pronunciation	.264	4.03	<.01
Reading Attack	.191	2.76	<.01
Reading Understanding	.206	2.99	<.01

*Spring test error scores of E + C groups combined on Bryngelson and combined judges' ratings on Spring test for reading were used.

do tend to vary together, although the absolute size of the correlation coefficients is small. While no conclusions concerning a causal relation between the measures can be drawn; it can be said, however, that they change together.

Comparison with the Sociogram. N 204*

In the same fashion, Bryngelson D-scores were compared with ratings on the Sociogram in the following fashion. The Bryngelson D-score was compared with each of the 12 items on the Sociogram. A t-test was made between the D-scores of the students who showed a positive change in rating on a given item on the Sociogram, and the D-score of those who failed to show such a change. Thus, there were 12 different comparisons. None of the t-values were statistically significant, so they were not placed in a table. This may be interpreted to mean that those children who showed positive changes on the Sociogram did not differ significantly

*Difference in N is due to student's failure to complete the whole series.

with respect to their D-scores on the Bryngelson from those who failed to show such a change. Since the Sociogram test had not been standardized, we do not feel that this evidence defies the relationship between speech and personality dimensions.

Templin Articulation Test. N 125*

A D-score was determined for each student by subtracting his post-test error score on the Templin from his pre-test score. A comparison was then made between these scores for the experimental and control groups. The t-value obtained was .60, which is not statistically significant for an N of 125. Again we have a finding which shows that the experimental and control groups did not differ significantly. Therefore, more testing is required with more groups and larger (N), in order to determine more accurately whether the test is not measuring what it purports to measure, whether the (N) is too small or whether in fact nothing really happens to the subjects.

Judgments of Spontaneous Speech and Reading. N 204*

Data from all schools were combined, and a median test was used to determine whether there was a greater change from pre-test to post-test scores for the experimental group than for the control group.

Judgments of the three judges were combined, and the D-scores were the differences between these combined ratings of pre-test and post-test performance. None of the comparisons was statistically significant.

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*Difference in N is due to student's failure to complete the whole series.

Ibid.

This means that the changes in rating from pre- to post-test were no greater for the experimental group than for the control group. There was improvement in both the (E) and (C) groups; we cannot conclude, however, that one group improved more than the other due to the experimental treatment.

SRA Reading Comprehension Test. N 220

Mean and standard deviation of the reading comprehension scores are shown in Table 4. The analysis of covariance of these data showed only one source of variation to be significant. This was the variance contributed by the schools (F 3.09; df 4, 208; $p < .05$). There was no significant difference between (E) or (C) conditions, and the SXC interaction was not significant.

This may be interpreted to mean that reading comprehension scores for some schools improved more than for others. An examination of Table 4 shows that in the schools, Root, Washington, and Jefferson, the scores of the experimental groups changed by the greatest absolute amount. For the experimental groups in Root, the difference was .77; for the control .53; the greatest difference occurred for the Jefferson group, inasmuch as experimental difference was 1.46, the control .69. The Jefferson group were carrying out an intensive reading program during this study.

In Bates and Leverett schools the scores of the control groups showed the greater change; the changes were not as large, however, as those recorded for the other schools. For the control group in Bates the score was .65; for the experimental groups .60; for the control

TABLE 4

SRA READING COMPREHENSION TEST

MEANS AND STANDARD DEVIATIONS

	BATES		LEVERETT		ROOT		WASHINGTON		JEFFERSON		TOTAL	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
E M	3.35	3.95	4.10	4.87	2.93	3.80	3.62	4.75	2.23	3.69	3.44	4.38
E S	1.25	1.37	1.29	1.11	1.23	1.34	1.16	1.20	.17	1.61	1.27	1.32
C M	3.68	4.30	3.13	3.93	3.40	3.93	3.53	4.59	4.46	5.15	3.54	4.34
C S	1.44	1.42	1.06	1.32	1.37	1.29	1.34	1.12	1.42	.78	1.32	1.25
TOTAL M	3.50	4.12	3.62	4.40	3.17	3.87	3.58	4.67	3.35	4.42	3.49	4.36
TOTAL S	1.33	1.37	1.28	1.27	1.28	1.27	1.24	1.14	1.51	1.43	1.29	1.28

group in Leverett the score was .80; for the experimental group .77.

There was no evidence, however, to support the view that (E's) improved more than (C's). In other words, the difference between the school was due to the fact that both (E) and (C) improved more in certain schools than in others. Since only the school's difference was significant, no t-tests were run on the data.

SRA Reading Vocabulary Test: N 220

The means and standard deviations are shown in Table 5. Analysis of covariance of these data indicates that both schools ($F = 7.55$; $df = 4,209$; $p < .01$) and SXC interaction ($F = 109.81$; $df = 4,209$; $p < .01$). Again, there was no difference between (E) and (C) groups. In all schools the control group consistently made more progress, or greater change. For example, the Bates experimental group changed .05, whereas the control group changed .40.

The significant school variance means that the schools differed on this measure. The significant interaction variance means that whether there is a difference between (E) and (C) groups depends upon the school, or that this difference is significant in some schools, but not in others. Or, put another way, the effect of (E) or (C) condition is not the same from school to school. Again, since our interest was mainly in the effect of (E) and (C) conditions and this difference was not statistically significant, no t-tests were made.

SRA Usage Test. N 220

This is the only SRA test which showed a significant difference between (E) and (C) conditions ($F = 5.68$; $df = 1,209$; $p < .05$). The

TABLE 5

SRA VOCABULARY

MEANS AND STANDARD DEVIATIONS

	BATES		LEVETEIT		ROOT		WASHINGTON		JEFFERSON		TOTAL	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
E M	3.75	3.80	4.43	5.03	3.20	3.67	3.59	4.66	2.23	3.54	3.64	4.34
E S	1.37	1.16	1.49	1.07	1.12	1.05	1.14	1.19	.17	1.28	1.36	1.26
C M	3.40	3.80	3.07	3.93	3.33	3.87	3.31	4.59	4.23	5.62	3.37	4.29
C S	1.07	1.23	1.15	1.39	1.94	1.53	1.19	1.69	1.48	.95	1.31	1.51
TOTAL M	3.58	3.80	3.75	4.48	3.27	3.77	3.45	4.62	3.23	4.58	3.50	4.31
TOTAL S	1.21	1.16	1.48	1.34	1.53	1.29	1.16	1.44	1.45	1.53	1.34	1.38

difference among schools, and the interaction failed to achieve significance. It may be noted in Table 6 that all of the control groups showed more change with a higher final score than did the experimental groups. The means and standard deviations for SRA usage are shown in Table 6.

Critical and Appreciative Listening Test. N 220

Analysis of covariance showed the difference between schools to be significant ($F = 2.53$; $df = 4,209$; $p < .05$), as well as the difference between the (E) and (C) groups to be significant ($F = 9.74$; $df = 1,209$; $p < .01$). Interaction between schools and conditions was not significant. This indicates that children in the different schools differed in their judgments of these statements. The important finding here is that (E) and (C) groups differ, with the (E) group obtaining the higher mean scores for the combined tests. This seems to indicate that the program had some effect on the scores of this test. The disconcerting fact is that mean scores for both (E) and (C) groups declined from pre-test to post-test, i.e., on the average, all scores declined from the first to the second test. An exception was the Jefferson school, where the scores were increased on the post-test. The numerical decrease in score from pre- to post-test was greater for the control group than for the experimental group. An intensive reading program emphasizing sounds and listening was being carried out in the Jefferson school at the same time that this study was in progress. It is possible that this could have been one of the contributing factors for the difference in the Jefferson score.

TABLE 6

SRA USAGE

MEANS & STANDARD DEVIATIONS

	BAINES		LEVERETT		ROOT		WASHINGTON		JEFFERSON		TOTAL	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
E M	3.85	4.15	4.43	5.20	3.33	4.07	3.88	4.69	2.62	3.54	3.80	4.51
E S	1.48	1.38	1.48	1.33	1.28	1.17	1.53	1.50	.08	.91	1.45	1.40
C M	4.10	4.90	3.07	3.91	3.80	4.67	3.66	4.78	3.38	5.46	3.56	4.65
C S	.94	.77	1.07	1.25	1.84	1.57	1.33	1.36	.68	.96	1.24	1.28
TOTAL M	3.98	4.52	3.75	4.58	3.57	4.37	3.77	4.73	3.00	4.50	3.68	4.58
TOTAL S	1.21	1.16	1.45	1.42	1.55	1.37	1.42	1.41	.61	1.35	1.35	1.34

TABLE 7

CRITICAL LISTENING

MEANS AND STANDARD DEVIATIONS

		BATES		LEVERETT		ROOT		WASHINGTON		JEFFERSON		ALL SCHOOLS	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
E	M	10.35	10.20	11.77	10.50	11.07	9.87	11.88	11.03	10.69	11.15	11.32	10.59
	S	2.38	1.56	1.61	1.19	.91	1.65	1.50	1.05	1.56	1.46	1.72	1.35
C	M	12.35	9.80	10.83	10.20	10.13	9.60	12.00	10.12	10.85	10.31	11.35	10.04
	S	2.21	1.32	2.53	1.80	1.65	1.82	1.84	1.23	1.33	.89	2.14	1.44
TOTAL	M	11.350	10.00	11.300	10.350	10.600	9.733	11.938	10.578	10.769	10.731		
	S	2.43	1.414	2.126	1.494	1.354	1.660	1.641	1.206	1.366	1.218		

Sociogram ("Guess Who" Test). N 285

Data from all children who completed this test were combined across schools for this analysis, and this accounts for the larger N. These data were analyzed in two ways. On each of the 12 rating items a t-test was made between the number of children in the (E) or (C) groups who obtained a higher rating on the post-test than on the pre-test, and those who showed either no change or a lower rating. Only one item yielded a significant t-value. When this many t-tests are made one of them could be significant just by chance, thus we must conclude that this test does not provide any indication of a difference between (E) and (C) groups.

The second test was an evaluation of the significance of the proportions in (E) and (C) groups who showed a positive change in rating from pre- to post-test. Again no significant differences were found between the groups.

Since this test had not been standardized before administration, we may assume that it is probably too crude a measuring instrument to provide an indication of the effectiveness of the television program.

While this particular test did not prove to be an adequate measuring instrument in this study, it was included for those who may be interested in further study with this type of test.

Speech Sound Discrimination. N 220

Means and standard deviations for Speech Sound Discriminations are shown in Table 8. Analysis of covariance was made as for the digits test. A significant difference was found between the schools

TABLE 8

SPEECH SOUND DISCRIMINATION

MEANS AND STANDARD DEVIATIONS

		BATES 20		LEVERETT 30		ROOT 15		WASHINGTON 32		JEFFERSON 13		ALL SCHOOLS 110	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
E	M	48.35	56.95	60.00	62.73	55.07	60.13	56.94	60.25	49.38	60.38	55.06	60.33
	S	19.59	9.59	5.85	2.74	8.49	2.87	8.40	3.82	13.69	3.79	11.86	5.25
C	M	49.50	59.00	54.00	62.33	59.73	62.00	57.16	60.50	50.69	61.62	54.49	61.06
	S	25.09	4.26	13.16	6.02	6.06	4.87	6.47	2.37	10.91	1.62	13.81	4.32
TOTAL	M	48.92	57.98	57.00	62.53	57.40	61.07	57.05	60.38	50.04	61.00		
	S	21.66	7.22	10.38	4.56	7.398	3.912	7.318	3.109	11.447	2.814		

($F = 5.76$; df = 4, 209; $p < .01$). No significant difference was found for conditions, or for the SXC interaction. It might be noted in Table 8 that the mean scores for the (E) group in Root School and Jefferson School were greater than the scores for the control groups in these schools. The experimenter noted more follow-up concerning speech sound discrimination in these schools than in the other schools. Since no significant difference was found between experimental and control groups, their data were combined and a t-test was made between the mean scores for schools on the post-test. This analysis showed that the post-test scores for Leverett, Root, and Jefferson were significantly ($p < .05$) higher than the score for Bates school; the post-test score for Leverett was significantly ($p < .01$) higher than the score for Washington. Both (E) and (C) groups improved their mean score from pre- to post-test.

Auditory Memory Span Test. N 220

An analysis of covariance was made of the digit forward data, adjusting post-test scores on the basis of pre-test performance. None of the comparisons were statistically significant. This means that there were no significant differences in the performance of the (C) and (E) groups, nor any difference between schools, and no interaction between the two. The same analysis was made for the digits backward data, and again no significant statistical differences were found. Mean scores on the digits forward test improved from pre-test to post-test for both (E) and (C) groups, as did the scores on the digits backward test. Mean scores on the digits forward test improved for all

groups except the (E) group in Washington school and both the (E) and (C) groups in Jefferson school. In general the mean scores of both groups on the digits backward test did not improve from the pre- to the post-test. Only two (E) groups, one at Washington School, and the other at Leverett School, denoted any improvement.

TABLE 9

DIGITS FORWARD

MEANS AND STANDARD DEVIATIONS

		BATES		LEVERETT		BOOT		WASHINGTON		JEFFERSON		ALL SCHOOLS	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
B	M	6.30	6.55	6.67	6.17	6.73	6.00	7.09	6.16	5.54	5.69	6.72	6.15
	S	1.29	1.08	1.41	1.17	1.54	1.17	1.08	1.97	1.38	1.07	1.28	1.40
W	M	6.60	5.90	6.63	6.27	6.27	6.07	6.97	6.19	6.08	6.38	6.61	6.16
	S	1.39	1.28	1.21	1.28	1.64	1.07	1.74	1.56	1.44	1.31	1.47	1.31

TABLE 10

AUDITORY MEMORY SPAN

DIGITS BACKWARD

MEANS AND STANDARD DEVIATIONS

		BATES		LEVERETT		ROOT		WASHINGTON		JEFFERSON		ALL SCHOOLS		M_D
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
E	M	4.75	5.55	4.83	4.80	3.93	4.60	4.84	4.69	3.92	4.46	4.59	4.84	+ .25
	SD	.31	.85	2.15	1.78	1.07	1.87	2.28	2.23	1.97	1.78	1.83	1.77	
C	M	4.80	5.10	3.87	4.40	3.73	4.20	4.69	4.75	3.54	5.00	4.22	4.67	+ .45
	SD	1.72	1.66	2.57	1.43	2.58	2.29	2.18	2.20	2.19	2.08	2.25	1.88	

V. DISCUSSION

A Response to Production

The reaction of the experimental subjects to the television programs varied with the programs. If there was much action, they were enthusiastic; and if they were given a chance to participate, their enthusiasm soared. Because of equipment, facilities, and lack of professional operators, only a limited number of programs allowed for action from the cast. The programs of necessity were amateur in production; they varied from poor, mediocre, to excellent. Many of the children and teachers found this difficult to accept, since they were somewhat sophisticated as television viewers. In general, however, the programs were favorably accepted; as reported by one of the principals, "never did the children fail to want to attend or listen to these programs." The response of the children indicated that the format of presentation was good. They loved the puppets, their favorite being "Voice Box." He was portrayed as a roughish, clownlike character who assumed an authoritarian role throughout the shows; often he was rebuffed. At the beginning of the series the children found the television teacher difficult to identify with. This difficulty lay in the television teacher's lack of experience with television. Once she began to feel accustomed to the situation she became flexible and easy with the children. At the end of the series she had become one of the children's favorites and a member of the school staff.

One of the goals of the experimenters was to try to combine the elements of education and entertainment within each script. It is the

opinion of one of the experimenters that the children were never able to detect which was which. They were never free from the entertainment aspect of television. Their comments and general behavior led the experimenters to assume this. The viewing area, the production, as well as the scripts could have been at fault. One of the experimenters felt that the situation, and general atmosphere was not one to encourage learning. It is possible that a daily program and an adequate viewing area might have given this added encouragement. Certainly, it was difficult for the cast to recapture interest after a period of four intervening days. It was also difficult to hold the attention of children who were seated uncomfortably in chairs that were too large for them.

Speech Improvement Effects

Although the groups, both teachers and children, showed improvement from pre- to post-test performance on the Program Content Test, Spontaneous Speech and Reading Test, Speech Discrimination Test and Auditory Memory Span Test, this improvement cannot be attributed solely to the television instruction because the (C) group which did not receive the program also showed improvement on these tests.

The television programs placed major emphasis on listening to, and discriminating between speech sounds. In this geographical area many of the schools are again emphasizing the teaching of speech sounds by way of auditory training or by way of listening. This could have been one of the reasons for the definite improvement within each group. At the time of the study Jefferson School was engaged in a study dealing with

the reading problem. There was some evidence to indicate, however, that the (E) group at this school had made the greater changes in listening.

It had been hoped that the course would serve as effective in-service-training for the teachers. The data indicated that the (E) teacher's scores showed a significant decline from Fall to Spring. There was a decline noted, however, in the scores of the (C) teachers. The tests were not monitored; an honor system was encouraged because of the research aspect. The experimenters had no way of knowing whether or not the honor system was upheld. There was the possibility of the experimental group sharing experiences with the control group. In most of the schools the teachers gather in one room for their daily lunch. The experimenters did not foresee this possibility; thus, this variable was not controlled.

This finding seems to reinforce the belief that television instruction may play only a supplementary role in teaching. Educators maintain that repetition and constant follow-up of the material makes for effective learning. The instruction given through television was the only structured instruction given, with the exception of the programs which necessitated preparation of the subjects prior to the production. In this case each teacher was given a script several days before the program. In this study the teachers were encouraged to follow up the instructions; however, there were no formal guides for them to follow. And thus, few reinforced the teachings. Furthermore, arrangements were not made for conferences, discussions or group meetings with the teachers.

One of the co-directors visited in a school for every production to observe the production and the response of the children and teachers. At this time the teachers were free to ask any questions or discuss any problem.

This finding also seems to support the belief that to learn to speak one has to speak, to be actively engaged in speaking. Neither the spontaneous nor the control speech of the (E) group demonstrated significant changes because of the television programs. There was also evidence that all the subjects with severe speech problems made considerable changes in speech behavior; the (C) group being comparable to the (E) group. The children for both (E) and (C) groups with mild speech defects, such as defective (s) (r) and (l) sounds, showed little improvement. It had been hoped that these children's problems could be solved through television because often times the over-burdened speech therapist does not have time for them.

In the last analysis, it should be noted that the experience of this study had an impact on both educational practices and policies among the teaching personnel involved. Among the by-products evidenced in present educational practices are those having to do with the application of the Methodology that was used in the television teaching. One teacher reports, for example, that although she had been teaching speech sounds she now taught the subject matter with more ease and confidence, and that she found this material useful in the teaching of spelling and reading. Both parents and teachers report that the children of the experimental group when reading attack unknown words

with more confidence than those of the control group. Some teachers report a continued use of the suggestions made in the television programs concerning voice, and others are finding the teaching of choral reading applicable. Another by-product is evidenced in the teacher's ability to recognize more readily the speech needs of the children. Better referrals, for example, are now being made to the speech therapist. The speech therapist has also gained in status. Yet another by-product has been the changes made in the location of the television receivers; several sets have been moved into the classrooms. And finally, this study furnished valuable and rewarding experience as well as financial aid to many college students.

SUMMARY AND CONCLUSIONS

The present study investigated the effectiveness of closed-circuit television instruction for speech improvement at the third grade level. The objectives of the study were (1) to test the effectiveness of closed-circuit television instruction as in-service-training for elementary classroom teachers, and (2) to test the amount of speech improvement achieved with the third grade children through fifty-two closed-circuit television programs presented bi-weekly for one school year.

Eleven classes of third grade children from the 1959-60 Fayetteville Public School enrollment served as subjects. Data were analyzed on 220 children and 10 teachers. Each of the five schools had a control and an experimental group. The control group did not receive the programs. Both groups were administered the same battery of tests prior to the programs and after the programs.

Both groups improved from pre-test performance to post-test performance on some of the tests. Since the experimental group did not demonstrate improvement significantly superior to that of the control group, the improvement could not be attributed primarily to the effect of the television programs. The findings seems to indicate that closed-circuit television instruction as presented in this study was not an effective medium for teaching speech improvement. The television instructions were effective neither as in-service-training for elementary classroom teachers nor as a medium for improving the speech of third grade students.

From this study the experimenters learned that effective television demands infinitely detailed pre-planning, professional and enthusiastic operators, adequate television facilities, and an intense interest on the part of all participants.

Since this is really one of the pioneer studies in this field, it is quite clear that more subjects should be tested more and various testing and teaching techniques need to be tried, before any firm conclusions can be drawn concerning the effectiveness of television in the area of speech.

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APPENDIX

PRODUCTION PROCEDURES

The preparation and the production of this experiment involved extensive investment in equipment even though we were in a rather convenient situation whereby the management of the local radio station, KHCC, which also operates a community cable closed circuit system, generously offered full use of their studio facilities. To facilitate continuity of programming and production, careful cooperative planning between personnel at the public schools and the University became a mandatory principle.

Following is a discussion of the various topics pertinent to the production of this experiment in teaching by television.

Production Personnel

It was decided that students from the television and acting classes in the speech department would be employed to participate in the productions under the supervision of the director of Radio-TV classes. Two students were assigned to cameras; one of these also assumed the role of floor manager. Three students, who had attained considerable experience as actors in the theatre productions, were cast as the voices of the "Talking Puppets". A graduate student, majoring in Speech, was chosen to be the on camera teacher. Another student majoring in speech and with several years experience as an engineer and director at a commercial television station, was placed in charge of production. During actual telecasting he also controlled the video portion of the show. A senior student from the television class was assigned to audio control. For the graphics artist, a student majoring both in art and speech was selected. The position of scriptwriter was given to another Speech Major who had already displayed an interest and a flair for TV scriptwriting.

Equipment

The following equipment was used for the implementation of this experiment:

2 Vidicon studio type camera chains complete with control units, power supplies, lenses, tripods, dollies, and intercommunication system. One chain was the Harkes-Tarzian model; the other, a Kay-Lab.

1 Video switching system.

1 Synchronizing generator.

1 Gates Audio Control Console

1 Vidicon film and slide chain, including one vidicon camera, camera control, 14" television picture monitor, wave form monitor, power supplies, 1 16mm. sound film projector, 1 multiplexer, and 1 automatic 2" x 2" slide projector.

2 Audio transcription turntables.

3 Microphones.

The lenses most frequently used were two 50 mm, one 90mm, two 25mm, and occasionally a Pan Cinor Zoom.

1 Microphone boom.

1 Tape recorder.

Basic lighting equipment.

6 24" TV receivers.

Miscellaneous test equipment.

Coaxial cable connections to the six schools participating in the program.

Studio Space

Since the University of Arkansas has no campus studios at this time, its productions originated from the studios of station KHOG in Fayetteville, which operates the community closed circuit cable system over channel 4. The management of KHOG consented to turn over its complete facilities to the University on those days reserved for programming this experiment. Engineers at KHOG had already installed portions of the University equipment and ties this in with their own facilities, thereby making possible a two-camera chain. On two days of each week, then, our crew had complete charge of audio and video effects while KHOG personnel moved into a smaller studio to continue regular radio broadcasting.

Floor measurements, which afforded sufficient room for these productions, were as follows:

Studio room - 28' x 25'
Control Room- 20' x 20'
Film and slide projection room - 20' x 15'

Receiving Rooms

The KHOG management had assumed the responsibility for extending its closed circuit television cable to the specific rooms of five schools in Fayetteville where the signal was to be received. The 24" receivers were located as follows:

1. Auditorium. Children brought in their own chairs which were more comfortable than the benches and chairs in the auditorium.

2. Auditorium. Children were often too far away from the set for good visibility and rapport.

PRECEDING PAGE MISSING

As soon as notice of the grant approval was received, negotiations proceeded for the preparation of scripts. We were fortunate to have available for this work a graduate student who had attained valuable experience writing a similar series as part of a project in the TV writing class. The fact that eight of these programs were produced gave an opportunity for observing weaknesses which were corrected in the preparation of the present series.

As the scripts were received, they were carefully checked for course content and production problems. Corrected scripts were then passed on to the typist who prepared sufficient copies for all production people. Meanwhile, numerous consultations had already taken place between the principal investigator and the public school speech therapist who also assisted as coordinator.

For the Monday programs, rehearsals were scheduled on Saturdays and Sundays, with studio camera rehearsals on Sunday nights. Rehearsals for the Friday program fell on Wednesdays and Thursdays, with studio rehearsals on Thursday nights. This was the general method except in those cases where the complexity of the program demanded more time. It may be mentioned that because of other regularly scheduled class commitments for all involved, complex production techniques requiring extensive rehearsal time were kept at a minimum.

Scheduling the Program

Following consultation with personnel at the public schools, it was decided that the best period for televising would be at 2:15 each Monday and Friday afternoon. A twenty-minute program was agreed upon since it was felt that this would offer enough time after each telecast for follow-up discussion in the various schoolrooms. It was also felt that the student attention span best fitted this time segment.

Program Procedure

The general format of the program was established as follows:

1. The on-camera teacher, who talked directly to the camera, was seated on a stool.

2. Five puppets on an elevated stage behind the teacher. The puppets, manipulated behind the scenes by their "voices", had been given names representing various vocal mechanisms, such as, "Voice Box", "Friendly Palate", "Pinky Tongue", "Pearly Teeth", "Ruby Lips". Depending on the objectives of the program from week to week, only one or two puppets appeared at any one time.

3. A standardized opening and closing format was designed for the entire series. This included a title card set on an easel in the studio, and the announcer's voice over music, both of which had been tape recorded. Both the introduction and the closing were timed at 30 seconds each.

With each program, the investigator would visit the classrooms to observe student reactions and to seek suggestions from the classroom teacher relative to receptivity of content and to the effectiveness of techniques employed on each program. This procedure proved particularly helpful from a technical standpoint. For example, on one program, it was learned that the visuals lacked definition because they were too "busy". They caused confusion in the minds of the students. In another case, the lighting used on the puppets did not show them to good advantage. At another time, the suggestion was made that the pacing of the story being told by the television teacher was too rapid to be assimilated properly. On two programs some teachers felt that too much material had been crowded into one script. In the very first program, mention was made that much of the language needed to be geared to the experience of the third grade audience.

One weakness evident to all concerned occurred during the first week of the series. The graduate student teacher had been selected with care for her fine personality, her genuine interest in young people (she herself is a mother), and the fact that she was a graduate student in the speech area. Despite these favorable qualities and despite the fact that considerable rehearsal time had been devoted to the opening programs, she seemed unable to overcome a camera shyness and artificiality which, of course, seemed apparent to most viewers. Perhaps because of the uniqueness of the situation and its attendant responsibility, this "stiffness" obviously afflicted all production members. Happily, the ensuing weeks brought about a gradual easing of tension. Confidence, ease and flexibility.

Techniques Utilized

1. Story telling. This constituted the over-all approach.

2. Drama. For variety and interest, short dramatic sequences were found effective in delineating points of a lesson. These necessarily required additional rehearsals and careful memorization. Consequently, even though these dramatizations seemed to be most successful, time permitted only a minimum use of this technique.

3. Visuals. These constituted line drawings, photos, slides, and models prepared by the graphics artist after consultation with the producer and directors. Cartoon drawings, often used to accompany portions of a story being narrated by the teacher, proved highly effective to the student viewers.

4. Films. Sound-on-film was used occasionally to enhance points of a lesson. Film was used sparingly and only in those portions where it was felt an idea could be clarified and augmented. Emphasis centered always on the "live" on camera performer as the best means to establish a proper rapport with the audience.

5. Puppets. Puppets were constructed of a celastic material while facial characteristics were painted. The firmness of the celastic and the design of the puppets made manipulation difficult. Valuable time was spent trying to discover a facile method of operation. It was felt that a more simply designed puppet - all cloth perhaps - might have resulted in more flexible movements and a more exciting performance. Mention should be made here of the difficulties involved in arriving at the most suitable quality of voice to represent the five puppets. In the early weeks of the program, the voices did not seem to carry distinctively characteristic traits. At times the voices actually sounded alike. The children found they were unable to distinguish one from the other. Further experimentation during rehearsal periods finally resulted in improved characterizations.

6. Recordings. In general tape and disc recordings were used to open and close each program. Several children's recordings of story classics were played, but only when it was felt that these would clarify lesson objectives. Such recordings would always be accompanied by appropriate visuals to supplement the audio segments. In addition, previously recorded speech patterns indicating the speech habits characteristic of other parts of the country as well as speech patterns of people from other lands were played back on various programs.

Some Final Observations On Production Problems

1. Care should be taken in the use of color slides since they tend to lose contrast definition over black and white television projection.

2. It was found that a completely written script need not be a part of every program. More often an outline script listing important points and visuals to be shown and necessary cues sufficed.

3. Although some textbook pictures are suitable for television reproduction, slight picture distortion ensues if the pages are not perfectly flat. Also, it is best to avoid glossy pictures from books or any other medium.

4. The use of a lavalier microphone for the on camera teacher proved more effective than the boom since the lavalier facilitated movement.

5. In preparing visuals, black figures on light gray or white figures on dark gray proved satisfactory.

6. For the sake of expediency, uniformity in the dimensions of photos was found to be most practical. It was also helpful to have them mounted on cardboard.

7. Experience showed that good results from blackboard work cannot be achieved if the board is cluttered. A few well-chosen and neatly drawn words or characters constitute the best approach.

8. Extreme care should be exercised in selecting both the type and number of visuals for a program. Too many visuals, and visuals for their own sake, cause confusion and disinterest.

9. Clothing worn by participants on camera should avoid all white, materials with high reflective areas such as velvets, "busy" designs, and extreme contrasts in plaids or checks. Grays, browns, and blues reproduce well.

10. To avoid glare from the receiving set, and provided the lighting arrangement in the reception room is satisfactory, the studio technical director should carefully check his light sources for reflectivity of such things as clothing, surfaces of desks, tables, pictures, and other objects.

11. Although the choice of a graduate student as "teacher" on the program was a good one, nevertheless, observation showed that the authority and assurance of a bona fide teacher would have strengthened the program.

12. Unfortunately, pressures from other regular duties often prevented all concerned from carrying out scheduled evaluation conferences from time to time. The students assigned to various aspects of production were occasionally hard pressed for complete rehearsal time because of class commitments.

Norman DeMarco

BUDGET AND FINANCING

Personnel

Co-Directors	
(1) 5 months full time; 9 months ¼ time	$ 4,925
(1) 2 months full time; 9 months ¼ time	2,922
Consultant, Psychology, part time	1,365
Speech Therapist, for public school, 12 months full time	4,800
Script Writer, Graduate Assistant, 3 months full time	1,000
Studio Teacher, Graduate Assistant, 9 months, ¼ time	800
Graphic Artist, Graduate Assistant, 9 months, ¼ time	800
Statistical Assistant, Graduate Assistant, 3 months, full time	1,000
Production Crew (4), 9 months, ¼ time	2,000
Camera Men (2), 9 months, ¼ time	1,000
Clerical Help, ½ time	1,200
Supplies and Materials	1,000
Maintenance Services	500
Publication and distribution of study guides and reports	1,000
TOTAL COST	$24,312

Funds supplied by:

University of Arkansas	$2,200
Public School (and State Aid)	3,000
	$5,200

Total non-Federal support of project	$ 5,200
Federal support requested	19,112

TECHNICAL APPENDIX

TABLES COVARIANCE

Comprehension

SOURCE	SS		df	v	f	p
Schools	11. 99		4	3.00	3.09	<.05
Conditions	. 54		1	.54	-	-
S X C	. 26		4	.065	-	-
Error	203. 04		209	.97		
Total			218			

Vocabulary

SOURCE	SS		df	v	f	p
Schools	29. 28		4	7.32	7.55	<.01
Conditions	. 68		1	.68	-	-
S X C	426. 07		4	106.52	109.81	<.01
Error	203. 15		209	.97		
Total			218			

TABLES COVARIANCE

Punctuation

SOURCE	SS	df	v	f	p
Schools	4.61	4	1.15	1.07	-
Conditions	.11	1	.11	-	-
S X C	23.75	4	5.94	5.55	<.01
Error	223.69	209	1.07		
Total		218			

Usage

SOURCE	SS	df	v	f	p
Schools	7.36	4	1.84	2.19	-
Conditions	4.77	1	4.77	5.68	<.05
S X C	3.92	4	.98	1.17	-
Error	176.12	209	.84		
Total		218			

TABLES COVARIANCE

Critical Listening

SOURCE	SS	df	V	f	p
Schools	12.75	4	3.19	2.53	<.05
Conditions	12.27	1	12.27	9.74	<.01
S X C	3.74	4	.94	-	-
Error	263.26	209	1.26		
Total		218			

Sound Discrimination

SOURCE	SS	df	V	f	p
Schools	273.06	4	68.26	5.76	<.01
Conditions	42.19	1	42.19	3.56	-
S X C	16.19	4	4.05	-	-
Error	2479.00	209	11.86		
Total		218			

TABLES COVARIANCE

Auditory Memory Span

Digits Forward

SOURCE	SS	df	v	f	p
Schools	2.36	4	.59	-	-
Conditions	.16	1	.16	-	-
S X C	11.44	4	2.86	1.83	-
Error	326.86	209	1.56		
Total		218			

Digits Backward

SOURCE	SS	df	v	f	p
Schools	18.25	4	4.56	1.38	-
Conditions	1.51	1	1.51	-	-
S X C	6.09	4	1.52	-	-
Error	692.83	209	3.31		
Total		218			

TESTS

AUDIOMETER TEST RECORD SHEET

School_____ Grade_____ Teacher_____ Date_____

County_____ Nurse_____ Tested by_____ Retested by_____

Write "O" under each frequency child hears. Write "X" under each frequency child does not hear. Write "O" under "audiogram results" if child passes.

NAME	Age	Screening and Retest		250	500	1000	2000	4000	8000	Audiogram Results	COMMENTS
1.		Screen	R								
			L								
		Retest	R								
			L								
2.		Screen	R								
			L								
		Retest	R								
			L								
3.		Screen	R								
			L								
		Retest	R								
			L								
4.		Screen	R								
			L								
		Retest	R								
			L								
5.		Screen	R								
			L								
		Retest	R								
			L								
6.		Screen	R								
			L								
		Retest	R								
			L								
7.		Screen	R								
			L								
		Retest	R								
			L								
8.		Screen	R								
			L								
		Retest	R								
			L								
9.		Screen	R								
			L								
		Retest	R								
			L								
10.		Screen	R								
			L								
		Retest	R								
			L								

Write "X" under "audiogram results" if child is to be referred for medical exam.
Ark. State Board of Health--Div. of Maternal and Child Health.

SHORT TEST OF SPEECH SOUND DISCRIMINATION*

Examples:
te-de
ere-ere
os-og

Key: All D Except
A. 1, 8
B. 1, 6, 8, 10
C. 3, 6, 8, 9
D. 4, 9, 10
E. 3, 4, 9
F. 3, 7
G. 3, 6

A	B	C	D	E	F	G
1. te-te	1. ne-ne	1. fo-θo	1. pe-ke	1. e -ed	1. e -ev	1. if-i
2. hwe-we	2. dʒw-tʃe	2. vo-ðo	2. tʃo-ʃo		2. et-ep	2. aim-ain
3. ne-me	3. ʃe-tʃe	3. zo-zo	3. ki-ti	2. ov-ob	3. ep-ep	3. eθ-eθ
4. ðe-de	4. im-iŋ	4. ʃe-ʒe	4. eb-eb	3. ed-ed	4. of-oθ	4. ini-iŋi
5. fi-vi	5. hwi-wi	5. fi-θi	5. ehwe-ewe	4. en-en	5. ov-oð	5. ef-ep
6. he-pe	6. ge-ge	6. zi-zi	6. en-em	5. edʒ-et	6. ed-eg	6. eð-eð
7. se-ze	7. dʒi-tʃi	7. mai-nai	7. eð-ed	6. eʃ-eʒ	7. em-em	7. idʒ -iʒ
8. θe-θe	8. fai-fai	8. θe-θe	8. ehe-epe	7. imi-iŋi	8. eð-ez	8. ep-ek
9. ʒe-dʒe	9. ðe-ve	9. he-he	9. ov-ov	8. ihwi-iwi	9. airai-aiwai	9. otʃ-oʃ
				9. eg-eg		
10. vo-bo	10. pe-pe	10. dʒi-ʒi	10. eθ-eð	10. is-iz	10. eʃ-eʒ	10. ez-eð

Out own norms, based on 30 normal speaking children from each of the grades 2 through 6 are as follows:

Grade	Average Number of Errors
2	14.2
3	11.8
4	10.1
5	10.2
6	10.1

Great care must be taken to ensure attention and to prevent fatigue. From a consideration of the test data, we would not feel justified in considering a person markedly deficient in phonetic discrimination unless he made ten or more errors above the average given.

*Mildred C. Templin adapted this test from the Frans-Rasmus speech sound discrimination test.

ARTICULATION TEST

by

BRYNG BRYNGELSON
and
ESTHER GLASPEY

NAME_____ Sex____ Race_____ Age_____ Grade_____

SCHOOL_____ TEACHER_____ DATE_____

Be sure to read directions before giving test. RETEST DATE_____

KEY: Mark substitutions with sound substituted; omissions (-); indistinct (ind.)

CARD CHECK WORDS	TEST I			COMMENTS	RETEST		
	1	2	3		1	2	3
1. sun, bicycle, bus							
2. sled, stairs, squirrel							
3. zipper, scissors, nose							
4. thumb, toothbrush, teeth							
5. thread, feather, swing							
6. red, barn, car							
yellow, house, white							
7. tree, ice cream cone, drum							
8. lamp, balloon, ball							
9. airplane, clock, blocks							
10. jacks, soldier, orange							
11. chair, pitcher, watch							
12. shoe, washing machine, fish							
13. cat, chicken, milk							
14. gun, wagon, pig							
15. fork, telephone, knife							
16. valentine, davenport, stove							

READING TEST

THE AMIABLE GIANT

by Louis Slobodkin

There was once an amiable Giant who lived, as most giants do, in a big, black, granite castle on the top of a tremendous mountain. And since he was an amiable (really friendly) Giant and he was lonesome living all alone in his big castle, sometimes he came down from his mountain top to visit the little people who lived in the pretty village in the valley.

But the villagers did not understand the purpose of his visit. They would slam their doors in the face of the amiable Giant and shut their windows.

"Take anything you want. Take our cattle. Take our grain. Take anything but leave us be," shouted the terror-stricken villagers from behind their locked doors.

ARTICULATION TEST

by Mildred C. Templin

myself	anything	scratch	o'possum
amount	forth	jump	grasp
drum	elephant	cage	sharp
number	ruff	large	bulb
banana	cloth	wheat	wharf
spoon	silk	help	talks
swinging	glasses	ship ahoy	boils
aging	grass	work	chasm
pipe	shoes	flowing	bend
upon	splashing	yellow	tripes
table	fresh	onion	health
outing	valentine	twine	bottle
skate	driving	cracker	arm
conduct	stone	quilt	straw
acorn	there	blotter	sprinkle
truck	bathing	brother	whisker
buckle	smooth	throw	aster
rhubarb	zipper	shrink	next
tube	present	snow	promp
dangle	pleasure	apple	burst
radio	garage	rubber	glimpse
sled	whistle	odor	church
gift	black and white	giggle	caged
biggest	cherry	ruffle	month
dog	reaching	ask	twelfth
thumb			

SCORE SHEET FOR SPONTANEOUS SPEECH AND READING

Questions:

Spontaneous speech

1. Intelligibility 1 - 5
2. Fluency 1 - 5
3. Voice 1 - 5

Reading

1. Fluency in reading 1 - 5
2. Pronunciation 1 - 5
3. Attack on words
4. Understanding and reading

MEMORY SPAN TEST

Instructions: Write your name and your teacher's name in the spaces at the bottom of the sheet.

I. I am going to say some numbers and when I am through I want you to write them on the sheet before you just the way I said them. Write one number in each blank space. For example: If I should say 6 - 2 - 4, you would write 6 - 2 - 4 in the spaces on the sheet. Listen carefully, and get them just right.

Problem 1. 3 - 7 - 1; 8 - 2 - 5

2. 9 - 6 - 4 - 2; 4 - 5 - 3 - 3

3. 5 - 8 - 2 - 4 - 9; 1 - 6 - 3 - 5 - 7

4. 2 - 7 - 3 - 1 - 7 - 9; 6 - 3 - 8 - 2 - 4 - 7

5. 7 - 1 - 4 - 8 - 9 - 2 - 3; 8 - 6 - 3 - 9 - 1 - 4 - 5

6. 9 - 2 - 7 - 3 - 8 - 4 - 6 - 5; 1 - 3 - 7 - 8 - 5 - 2 - 6 - 4

II. Now, I am going to say some more numbers, and I want you to write them backwards. For example, if I should say 3 - 2 - 6, you would write 6 - 2 - 3. Listen carefully and be sure to write the numbers backward.

1. 7 - 4 - 9; 2 - 8 - 3

2. 1 - 6 - 5 - 4; 9 - 2 - 3 - 1

3. 3 - 5 - 4 - 8 - 9; 5 - 7 - 2 - 1 - 6

4. 8 - 1 - 6 - 7 - 9 - 5; 4 - 2 - 8 - 5 - 3 - 8

5. 6 - 9 - 1 - 4 - 2 - 5 - 3; 2 - 9 - 5 - 7 - 3 - 6 - 7

SOCIOGRAM

Guess Who Test

Instructions:

Write your name and your teacher's name in the spaces at the bottom of the sheet which you have received.

We are going to play a guessing game. I am going to describe or give a word picture of some children, and you are to write the name of the two persons in this class who are most like the description or word picture. Write the names on the sheets which you have. For example, I might say: Guess who the two persons in this room who are the tallest boys in the room. You would then write their names in the two blank spaces beside the number of that word picture. Do you understand? (Repeat or elaborate until it is clear.)

Several children in the class may fit one picture, and the same child may be used for more than one of the word pictures. Think about each one carefully, and write the names of the two persons in this class who are most like the word picture.

(Administrator will preface each description with the words: "Guess who the two children are who....")

Guess Who Test

Instructions:

Write your name and school in the spaces at the bottom of the sheet.

I am going to describe or give a word picture of some children, and you are to write the name of the two persons in this class who are most like the description or picture. Write these names on the sheet which has been given to you. For example, I might say: Here are the two tallest boys in the room. You would then write their names in the two blank spaces beside the number of the picture. Do you understand?

Several children in the room may fit one picture, and the same child may be used for more than one word picture. Think about each picture carefully, and write the names of the two persons in this class who are most like the word picture.

(Administrator will preface each description with the words: Guess who the two children are who.....!)

Number 1. always feel they know the answer to any question which is asked.

Number 2. want someone else to be the leader in games.

Number 3. get very excited when the class is planning some new activity.

Number 4. let other persons plan class activities, and don't take part in the class.

Number 5. like jokes and don't get upset or mad very easily.

Number 6. cry or get mad often.

Number 7. are always ready to help someone else.

Number 8. get mad at others easily, and fight and quarrel with them.

Number 9. are always willing to wait for their turn.

Number 10. push to the front of a line when food or work materials are being passed out.

Number 11. never make fun of someone who has made a mistake or of someone who can't do something as well as most people can do it.

Number 12. make fun of people who can't play games well or of people who have given wrong answers to questions.

Listening for Cricital and Appreciative Evaluation

B. Sentences - Which do you like best?

Choice 1. 1. in a big oak tree
2. They are in a big oak tree.

* 2. 1. We wrote a long letter.
2. Us wrote a long letter.

* 3. 1. I ain't going with you.
2. I'm not going with you.

* 4. The sun was very bright, and we thought the city looked like fairyland. (NASAL-ch. 1.)

* 5. Billy and I went to the picnic. (BREATHY-ch. 2.)

* 6. We had both read the book about animals. (HIGH PITCH-ch. 1.)

* 7. The teacher read to us about giraffes, elephants, tigers, and many other animals. (HOARSE-ch. 1.)

* 8. That boy is mischievious.
That boy is _____.

* 9. 1. I haven't ever eaten there.
2. I haven't never et there.

* 10. 1. The cards I received said, "Will you be my Valentain?"
2. The cards I received said, "Will you be my Valentine?"

* 11. 1. We <u>are</u> in the third grade.
2. We <u>am</u> in the third grade.

* 12. 1. Have you ever went to the circus?
2. Have you ever gone to the circus?

* 13. 1. The boys and girls were playing on the <u>swing</u>.
2. The boys and girls were playing on the <u>swang</u>.

* 14. You should always be polite to everyone. (LOW PITCH-ch. 1.)

* 15. 1. Have you ever byed anything in a store?
2. Have you ever bought anything in a store?

* 16. 1. Where is it in the library?
2. Where in the library?

		Day	Month	Year	
*	17.	Today is	_____	_____	_____. (NASAL-ch 1.)
*	18.	Yesterday was	_____	_____	_____. (BREATHY-ch 1.)
*	19.	Tomorrow will be	_____	_____	_____. (HOARSE-ch. 2.)

* 20. 1. Have you ever reed <u>Alice In Wonderland</u>?
2. Have you ever read <u>Alice In Wonderland</u>?

21. Poem - Poor Choice was first.

KNOW YOUR OFFICE

Program 2

(Sample Script)

KNOW YOUR SPEECH

M.J.: Hi, boys and girls! Welcome to KNOW YOUR SPEECH. My, it's nice to see you again. Do you remember all of the things we talked about last time? Do you remember what "speech" is?----------That's right, "speech" is talking. Do you remember the talking helpers? Let's see if we can name all <u>five</u> of them. There's-------Pinky Tongue------Ruby Lips------Pearly Teeth------Friendly Palate and------ Voice Box. That's quite a bit to remember, isn't it? Well, of course, none of the puppets are going to be with us today. I thought it would be nice if we just had our own little visit. The first thing I want to talk about is--------

V.B.: (desperately) Wait, wait, Miss Jones. Stop everything. Wait! (V.B. is panting - out of breath - nearly collapses on his stage) I ran all the way to the studio and I'm exhausted.

M.J.: Why - it's Mr. Voice Box! Whatever is the matter? I thought you puppets weren't going to be here today.

V.B.: (still panting and still desperate) We're <u>not</u> - I mean, <u>I'm</u> not - I mean, <u>they</u> aren't, <u>I am</u>! (nearly collapses again)

M.J.: Voice Box, you're acting so strangely. Is something wrong?

V.B.: (rises to full puppet height) Wrong! WRONG!!! My dear, something is dreadfully wrong! (looks to see if spies are about) We've forgotten to tell the children <u>what every child should know</u>!

M.J.: Oh no! Oh, dear! Oh, how could I have forgotten anything so important as that?----------By the way, what <u>should</u> every child know?

V.B.: Listening, my dear, Listening!!!

M.J.: Every child should know about listening? Oh. Voice Box, I'm disappointed in you. Don't you know that this is a program for talking?

V.B.: Precisely, my dear! Precisely! In trying to help the children know their speech we forgot to tell them one of the best ways; and one of the best ways is through listening!

M.J.: (who isn't sure at all) I'm sure you're right - but how shall we go about this-----listening business?

V.B.: First, we must find out how good you and the boys and girls are at listening - and go on from there. Tell me, Miss Jones, what do you hear right now?

M.J.: (listens inattentively) Why, I don't hear anything. Television studios are always very quiet. (loud crash is heard) Well, television studios are almost always very quiet.

V.B.: No, Miss Jones, you miss the point. There is sound around us all the time. Boys and girls, listen for a minute and tell me what sounds you hear?-----That's the idea, Miss Jones. You see some of them heard children playing. There is sound around us every second of the day! Sound, sound, and more sound!!!

M.J.: (more puzzled than ever) Voice Box, what is sound - I mean, what causes it? What does it look like?

V.B.: My dear, you don't see it, you hear it! But I can explain what causes it. Sound is caused by something which vibrates. There now, do you understand?

M.J.: (who doesn't) "Vibrate?" I dcn't understand "Vibrate!"

V.B.: I was afraid of something like this. Oh well, to vibrate, Miss Jones, means to move back and forth very rapidly. Here, I'll show you (indicates model on table with a string stretched across in some fashion.) Snap the string, Miss Jones. (camera closeup to model) (M.J. does) There do you see it vibrating?

M.J.: Yes, yes, I do see! (snaps string again) It is vibrating.

V.B.: Exactly! You caused the string to vibrate - the vibrations caused the sound which travels through the air to your ear! Try it again.

M.J.: All right. (she snaps string again) Voice Box, what do you mean when you say, sound travels?

V.B.: Miss Jones, did you ever throw a pebble in a brook? (she has) My dear, what happened?

M.J.: What happened? Well, when you throw a pebble in a brook the pebble caused circles and circles of ripples. (audio-visual aid would be nice here)

V.B.: The vibrations of sound travel in much the same circles as those ripples, Miss Jones, only sound can travel through air, water, metal, wood, ---oh, a great many other things. Did you know, that it takes sound 5 seconds to travel a mile through air. It can travel about 5 times as fast in water, and about 11 times as fast in metal. Miss Jones, do you see that other object on the table

M.J.: This? (picks up tuning fork) What is it, Voice Box?

V.B.: That is called a tuning fork. Strike it, Miss Jones (she does) Can you see it vibrating?

M.J.: Yes, I can, but I doubt if the boys and girls can see it.

V.B.: Don't worry about it for a moment, Miss Jones. Voice Box has thought of everything! Do you see that glass of water? (camera on water) (M.J. says "Yes") Very well, strike the tuning fork and place it in the glass of water.

M.J.: All right. (she strikes it - places it in water - water moves - anyway the book says it will) Oh, look, Voice Box, the water is moving.

V.B.: True. You see, my dear, the sound is traveling through the water-----

M.J.: Voice Box, you've been awfully kind to explain all of this, but I'm really not certain I understand.

V.B.: That's quite all right, Miss Jones, I've brought a movie along to show you and the boys and girls. Maybe this will help:

Movie---LEARNING ABOUT SOUNDS

V.B.: Miss Jones, what did you learn today?

M.J.: Oh dear, a great many things. I learned that sound is made when an object is set in vibration. I learned that sound can travel through air- or water - or almost anything! I liked the movie, didn't you?

V.B.: Of course, I chose it. In fact, I helped make it. But then we mustn't get off the subject. You have forgotten one very important thing.

M.J.: I have? Well, what is it, Voice Box?

V.B.: What is it every child should know?

M.J.: Oh yes, listening! Will we do some listening next time?

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V.B.: Certainly! We're going to talk more about sound and we're going to listen to different kinds of sounds. By the way, boys and girls, there's a chapter in your science book on sound. Maybe you'd like to look through it. Well, my dear, I must be running along. See you next time/

M.J.: Good-bye, Voice Box. Good-bye boys and girls.

PROGRAM CONTENT TEST

Questions - 1st and 2nd Semesters

1. Have you had any previous speech courses? If so, where and when?

2. What was the nature of the course?

3. How many children in your class have had previous speech training? If so, where and when?

4. What was the nature of the child's speech training?

Questions - 1st semester

1. Define the term--speech improvement

2. What parts of the body are responsible for speech?

3. How may the term sound be defined?

4. Enumerate the different types of sound.

5. How do they differ?

6. Where does vocal sound originate?

7. How do we hear?

8. In the following words locate the [p], [b] sounds according to the position in the word, for example, [p] is in the medial position in the word example.

pie_____ type_____ happy _____

hope_____ pipe_____ boy_____

tobacco_____ debate_____ lamb_____

9. List the bilabial speech sounds--underscore the voiced sounds in this group.

10. Which particular part of the speech mechanism is involved in the production of [f] , [v] ?

11. Write the number of sounds each word contains by the word--for example, word-3

psalm-_____ cheese-_____ noisy-_____ toward-_____

television-_____ finger-_____ envelope-_____

12. What is meant by auditory memory span?

13. How can you increase the auditory memory span of children?

14. What is the primary difference between [t] and [d]?

15. What is meant by sound substitution?

16. What sounds may be substituted for [f] , [t] , [s] .

17. List all the sounds that are made with the same articulators. Ex: (g, ng)
both are made with the back of the tongue elevated toward the back of the palate.

18. Describe the production of [s] , [r] , [z][s]

19. Does the tongue have to be in one particular position for the acceptable pronunciation of the [r] sound?

20. What, if any, is the difference between [r] and [w]?

21. List three words using the voiced th sounds and the voiceless [th].

22. What sound substitutions are sometimes used for [r], [th] ?

23. Is the [l] sound voiced or unvoiced?

24. List the voiceless speech sounds.

25. How may we define the terms--consonant and vowel--so that a child will understand?

26. List the different spellings for the sound $\bar{a}$.

27. Briefly describe how voice is produced.

28. What are the characteristics of a normal effective voice?

29. What are the characteristics of a poor voice?

30. What determines the pitch of our voice?

31. What are the essential differences between the sound of a violin and those of a child?

32. How does resonance affect our voice?

33. What vocal characteristic enables one to differentiate between the voice of a child, an older person, a young adult?

34. What voice defects do young children have?

35. Give one technique you might use to improve the quality of a child's voice.

36. There are three main regional zones of American pronunciation (speech)------ Can you list them?

37. Would you accept the following omissions or transpositors in the pronunciation of the following words: goverment for government; childen for children; liberry for library; English (without the g) for English (with g)

38. Would you accept informal speech such as: "I wanta go" for "I want to go"; "Joe n' Mary" for "Joe and Mary"?

39. Give one technique you might use to improve a child's "listening to speech ability."

40. How would you interpret this statement?-----"Speech as a safety valve of emotions."

41. Is the speech of a cowboy acceptable?

42. Is the speech of a mountaineer acceptable?

43. What is "thinking aloud?"

44. Should we have a standard American speech?

45. Should we discourage colloquialism?